IN THE CLAIMS:

1. (Original) In a pacing system adapted to be implanted in a patient's body to provide atrial pacing at an atrial pacing rate exceeding a slow intrinsic atrial heart rate insufficient to provide adequate cardiac output comprising an implantable pulse generator, an atrial lead extending from the implantable pulse generator having at least one active atrial pace/sense electrode adapted to be disposed in operative relation to an atrial heart chamber, and an indifferent atrial pace/sense electrode adapted to be implanted in the patient's body, the implantable pulse generator further comprising:

atrial pace pulse generator means coupled to the active and indifferent atrial pace sense electrodes for delivering an atrial pace (A-PACE) pulse having an A-PACE pulse width and an A-PACE pulse amplitude to the atrial heart chamber;

atrial sensing means coupled to the active and indifferent atrial pace/sense electrodes for sensing intrinsic atrial depolarizations and declaring an A-EVENT;

A-A escape interval timing means for timing out an A-A escape interval following generation of an A-PACE pulse by said atrial pulse generator means and following an A-EVENT declared by the atrial sensing means; and

means for triggering said atrial pulse generator means to generate an A-PACE pulse at the expiration of the A-A escape interval whereby the atrial heart chamber is paced in the absence of an A-EVENT declared during the A-A escape interval, an atrial capture management (ACM) method for periodically determining an A-PACE pulse energy sufficient to reliably capture the atrium without being wasteful of battery energy from a test A-PACE pulse energy at atrial loss of capture (ALOC) further comprising:

defining an ACM test window exceeding a prevailing A-A escape interval and correlated to the slow intrinsic atrial heart rate;

setting the A-PACE pulse energy of a test A-PACE pulse;

triggering the atrial pace pulse generator means to deliver at least one test A-PACE pulse at the test A-PACE pulse energy during the ACM test window;

timing out the ACM test window;

declaring ALOC by the delivered test A-PACE pulse at the test A-PACE pulse energy if an A-EVENT is declared during the time-out of an ACM test window;

declaring atrial capture by the delivered test A-PACE pulse at the test A-PACE pulse energy in the absence of an A-EVENT declared during the ACM test window; and

setting the prevailing A-PACE pulse energy as a function of the test A-PACE pulse energy at ALOC .

2. (Original) The method of Claim 1, further comprising the steps of:

determining if an A-EVENT detected during the ACM test window is likely due to one of retrograde conduction of or far field sensing of a ventricular depolarization; and

withholding the declaration of ALOC if the A-EVENT is likely due to one of retrograde conduction of or far field sensing of a ventricular depolarization.

3. (Original) The method of Claim 2, wherein the step of defining an ACM test window comprises changing the A-A escape interval to follow generation of a test A-PACE pulse by said atrial pulse generator means from the prevailing A-A escape interval to a prolonged A-A escape interval correlated to the slow intrinsic atrial heart rate.

4. (Original) The method of Claim 2, wherein the triggering step further comprises triggering the atrial pace pulse generator means to deliver at least one additional test A-PACE pulse at the test A-PACE pulse energy during the ACM test window.

5. (Original) The method of Claim 4, wherein the timing step comprises counting a plurality of delivered test A-PACE pulses at the test A-PACE pulse energy and halting the time-out of the ACM test window when a predetermined number of test A-PACE pulses are delivered.

6. (Original) The method of Claim 2, wherein the ACM steps are repeated in a sequence to determine the test A-PACE pulse width and/or the test A-PACE pulse amplitude at ALOC.

7. (Original) The method of Claim 1, wherein the step of defining an ACM test window comprises changing the A-A escape interval to follow generation of a test A-PACE pulse by said atrial pulse generator means from the prevailing A-A escape interval to a prolonged A-A escape interval correlated to the slow intrinsic atrial heart rate.

8. (Original) The method of Claim 1, wherein the triggering step further comprises triggering the atrial pace pulse generator means to deliver at least one additional test A-PACE pulse at the test A-PACE pulse energy during the ACM test window.

9. (Original) The method of Claim 8, wherein the timing step comprises counting a plurality of delivered test A-PACE pulses at the test A-PACE pulse energy and halting the time-out of the ACM test window when a predetermined number of test A-PACE pulses are delivered.

10. (Original) The method of Claim 1, wherein the ACM steps are repeated in a sequence to determine the test A-PACE pulse width and/or the test A-PACE pulse amplitude at ALOC.

11. (Original) The method of Claim 1, wherein the ACM method further comprises the step of delivering a plurality of support A-PACE pulses at the prevailing A-A escape interval

12. (Original) In a pacing system adapted to be implanted in a patient's body to provide atrial pacing at an atrial pacing rate exceeding a slow intrinsic atrial heart rate insufficient to provide adequate cardiac output comprising an implantable pulse generator, an atrial lead extending from the implantable pulse generator having at least one active atrial pace/sense electrode adapted to be disposed in operative relation to an atrial heart chamber, and an indifferent atrial pace/sense electrode adapted to be implanted in the patient's body, the implantable pulse generator further comprising:

atrial pace pulse generator means coupled to the active and indifferent atrial pace sense electrodes for delivering an atrial pace (A-PACE) pulse having an A-PACE pulse width and an A-PACE pulse amplitude to the atrial heart chamber;

atrial sensing means coupled to the active and indifferent atrial pace/sense electrodes for sensing intrinsic atrial depolarizations and declaring an A-EVENT;

A-A escape interval timing means for timing out an A-A escape interval following generation of an A-PACE pulse by said atrial pulse generator means and following an A-EVENT declared by the atrial sensing means; and

means for triggering said atrial pulse generator means to generate an A-PACE pulse at the expiration of the A-A escape interval whereby the atrial heart chamber is paced in the absence of an A-EVENT declared during the A-A escape interval, atrial capture management (ACM) means for periodically determining an A-PACE pulse energy sufficient to reliably capture the atrium without being wasteful of battery energy from a test A-PACE pulse energy at atrial loss of capture (ALOC) further comprising:

ACM test window defining means for defining an ACM test window exceeding the A-A escape interval and correlated to the slow intrinsic atrial heart rate;

means for setting the A-PACE pulse energy of a test A-PACE pulse;

means for triggering the atrial pace pulse generator means to deliver at least one test A-PACE pulse at the test A-PACE pulse energy;

means for timing out the ACM test window;

means responsive to an A-EVENT declared during the time-out of the ACM test window for declaring ALOC by the delivered test A-PACE pulse at the test A-PACE pulse energy;

means responsive to the absence of an A-EVENT declared during the ACM test window for declaring atrial capture by the delivered test A-PACE pulse at the test A-PACE pulse energy; and

means for setting the prevailing A-PACE pulse energy as a function of the test A-PACE pulse energy at ALOC .

13. (Original) The pacing system of Claim 12, further comprising:

means for determining if an A-EVENT detected during the ACM test window is likely due to one of retrograde conduction of or far field sensing of a ventricular depolarization; and

means for withholding the declaration of ALOC if the A-EVENT is determined to be likely due to one of retrograde conduction of or far field sensing of a ventricular depolarization.

14. (Original) The pacing system of Claim 13, wherein the means for defining an ACM test window comprises means for changing the A-A escape interval to follow generation of a test A-PACE pulse by said atrial pulse generator means from a prevailing A-A escape interval to a prolonged A-A escape interval correlated to the slow intrinsic atrial heart rate.

15. (Original) The pacing system of Claim 13, wherein the triggering means further comprises means for triggering the atrial pace pulse generator means to deliver at least one additional test A-PACE pulse at the test A-PACE pulse energy during the ACM test window.

16. (Original) The pacing system of Claim 15, wherein the timing means comprises means for counting a plurality of delivered test A-PACE pulses at the test A-PACE pulse energy and halting the time-out of the ACM test window when a predetermined number of test A-PACE pulses are delivered.

17. (Original) The pacing system of Claim 13, wherein the ACM means repeats operation in a sequence to determine the test A-PACE pulse width and/or the test A-PACE pulse amplitude at ALOC.

18. (Original) The pacing system of Claim 12, wherein the means for defining an ACM test window comprises means for changing the A-A escape interval to follow generation of a test A-PACE pulse by said atrial pulse generator means from a prevailing A-A escape interval to a prolonged A-A escape interval correlated to the slow intrinsic atrial heart rate.

19. (Original) The pacing system of Claim 12, wherein the triggering means further comprises means for triggering the atrial pace pulse generator means to deliver at least one additional test A-PACE pulse at the test A-PACE pulse energy during the ACM test window.

20. (Original) The pacing system of Claim 19, wherein the timing means comprises means for counting a plurality of delivered test A-PACE pulses at the test A-PACE pulse energy and halting the time-out of the ACM test window when a predetermined number of test A-PACE pulses are delivered.

21. (Original) The pacing system of Claim 12, wherein the ACM means repeats operation in a sequence to determine the test A-PACE pulse width and/or the test A-PACE pulse amplitude at ALOC.

22. (Original) The pacing system of Claim 12, wherein the ACM means further comprises means for delivering a plurality of support A-PACE pulses at the prevailing A-A escape interval.